IMPACTS OF THE COASTAL BARRIER RESOURCES ACT

BY DAVID R. GODSCHALK

IMPACTS OF THE COASTAL BARRIER RESOURCES ACT: A PILOT STUDY

DAVID R. GODSCHALK, PROFESSOR
DEPARTMENT OF CITY AND REGIONAL PLANNING
UNIVERSITY OF NORTH CAROLINA
CHAPEL HILL, NORTH CAROLINA 27514

Purchase Order Number NA83AAA04473
Dollar Amount $8000
Non-competitive Award

Sponsor:
U.S.Department of Commerce/NOAA
Office of Ocean and Coastal Resource Management
Washington, D.C. 20235
COTR: Vickie Allin

FINAL REPORT

1 March 1984

IMPACTS OF THE COASTAL BARRIER RESOURCES ACT: A PILOT STUDY

EXECUTIVE SUMMARY

Enactment of the Coastal Barrier Resources Act of 1982 (CBRA) set a new direction in implementation of national coastal policy. The Act withdraws incentives--in the form of Federal flood insurance and assistance for infrastructure--from future development in those Atlantic and Gulf coast areas designated as "undeveloped" under the Act.

CBRA seeks to establish consistent Federal policy not to subsidize future development in hazardous, undeveloped coastal barrier areas. It does not prohibit owners from building there, but it does shift the cost of infrastructure and the risk of loss from the Federal Treasury to the private sector or to state or local governments. Its purpose is to minimize loss of life, wasteful expenditures of Federal revenues, and damage to natural resources.

The CBRA policy is a unique and explicit Congressional development management strategy. Unlike de facto development policies or broad programs delegated to other agencies for implementation, CBRA clearly links its actions and objectives and expressly focusses on 186 coastal barrier areas designated "undeveloped" on maps adopted as part of the Act. Because it stakes out a new Federal policy implementation approach, CBRA offers an important opportunity for study.

The study reported here seeks to identify initial impacts of CBRA, to compare actual with expected impacts, to examine responses of major groups involved in coastal barrier development and management, and to assess implications for state coastal zone management programs. Information is gathered through two case studies, a three-state mail survey, and inquiries among insurance and financial organizations. Because full CBRA provisions had only been in effect for a few months at the time of the study, findings are preliminary but evidence of impacts is visible, especially in the case study areas.

Topsail Island, North Carolina, is a barrier island where withdrawal of Federal Flood insurance has had a clear initial impact on development. One measure of the weight given to this impact is the response of island developers, eleven of whom sued the Federal government in September, 1983, in an effort to have their lands removed from designation as undeveloped so that they could regain access to Federal flood insurance. Their suit was dismissed by a U. S. District Court on January 31, 1984, on grounds that Congressional adoption of designated area maps as part of CBRA precluded judicial review.

Hutchinson Island, Florida, is a barrier island where withdrawal of Federal assistance for infrastructure, in combination with other state and local actions, has had a significant initial impact on development. After finding that the traffic carrying capacity of bridges serving the island was exceeded by existing and approved development, the St. Lucie County government then discovered in 1982 that neither Federal (under CBRA constraints) nor State (under a Governor's Executive Order) funds were available to finance needed bridge improvements. The County imposed a moratorium on new project review and denied several pending proposals, citing lack of traffic capacity. Developers sued the County, and the case is on appeal. The County began a search for alternative ways of financing new bridge construction, including various forms of developer participation. Meanwhile, reductions in local land use densities have been recommended under the Hutchinson Island Resource Management Plan adopted in 1983.

These case studies indicate that the CBRA aims of shifting infrastructure costs and risks of loss away from the Federal Treasury are being achieved, at least in some areas. Whether the conservation aim will also be achieved is less clear. This will depend upon the extent to which state and local governments reinforce CBRA goals, private insurance companies make flood insurance available, banks and development finance agencies relax insurance conditions on future loans and mortgages, private development companies modify plans for coastal barrier projects, and conservation organizations redraw priorities for acquiring coastal barrier open space.

The mail survey found indications of a range of possible outcomes, from an increase of development pressure in developed areas to a decrease in undeveloped areas, from an increase in open space acquisition to an increase in development densities, from a stopping of development to developers obtaining private insurance. The most common response, however, was that effects of withdrawal of Federal flood insurance and infrastructure assistance are not yet apparent, and that overall impacts have been either minor or neutral to date.

CBRA has the potential to be an active development management influence, but this will depend largely upon both the responses of other coastal actors and any future Federal actions for long-term conservation purposes. Meanwhile, CBRA's initial impacts could be greatly heightened in the wake of one or more major hurricanes, in whose aftermath the loss of Federal flood insurance, disaster assistance, and infrastructure funding would be intensified.

FOREWORD

Much policy analysis is done long after the fact. When the trail of actions is cold, the domain becomes that of the historian rather than the planner. I am grateful to have had the opportunity to be involved with the Coastal Barrier Resources Act at an early stage.

Vickie Allin of the Office of Ocean and Coastal Resource Management arranged for the resources that enabled me to visit affected coastal barrier islands and to gather information from a wide cross section of people involved with their destiny. The Department of City and Regional Planning at the University of North Carolina provided a semester of leave from teaching that gave me the time to learn about the initial effects of the Coastal Barrier Resources Act, a pioneering development management policy.

My teachers were the state and local coastal planners, developers, conservationists, insurance representatives, and bankers in North Carolina, South Carolina, and Florida. They were generous with their time and patient with their explanations.

I was assisted by two graduate students in planning at North Carolina. Claudia Shambaugh gathered background data from the case study locales, compiled the tables on assessed valuation, prepared the bibliography, and helped to tabulate and follow up the survey response. Jim Anders prepared all the report graphics.

I deeply appreciate all the help these people gave me. However, all opinions or errors in this report are my own responsibility.

David R. Godschalk

IMPACTS OF THE COASTAL BARRIER RESOURCES ACT: A PILOT STUDY

CONTENTS

IMPACTS OF THE COASTAL BARRIER RESOURCES ACT: A PILOT STUDY

DAVID R. GODSCHALK

BACKGROUND

With the enactment of the Coastal Barrier Resources Act of 1982 (CBRA), Congress embarked on a new tack in implementing coastal policy. The new policy withdraws Federal incentives that encourage development within specific locations, veering sharply from past practices that relied primarily on adding Federal incentives to influence development in order to achieve public purposes.

CBRA seeks to establish a consistent Federal policy not to subsidize future development in hazardous undeveloped coastal barrier areas. It does not prohibit owners from building on their property but it does shift the infrastructure cost and risk of loss from the Federal government to the private sector or to state or local governments.

What have been the initial effects of CBRA's new course? This pilot study seeks to answer that question through a review of initial conservation and development impacts on coastal zone management in three of the states where major CBRA impacts are anticipated by Federal planners: North Carolina, South Carolina, and Florida.

Coastal Barrier Resources Act

In CBRA Congress found that Atlantic and Gulf coastal barriers provide essential habitats, resources, and storm protection and are generally unsuitable for development. Because Federal government actions have subsidized and permitted development on coastal barriers, resources have been lost; life, health, and property threatened; and millions of tax dollars spent each year. Coordinated action by Federal, state, and local governments is critical to use and conserve coastal barriers more appropriately.

CBRA's purpose is to minimize loss of life, wasteful expenditure of Federal revenues, and damage to natural resources by:

1. restricting future Federal expenditures and financial assistance that encourage coastal barrier development;
2. establishing a Coastal Barrier Resources System;
3. considering means for long-term conservation of

fish, wildlife, and other natural resources.

CBRA's immediate actions are to designate and map a chain of 186 "undeveloped" areas stretching from Maine to Texas as the Coastal Barrier Resources System and to prohibit further Federal expenditures or financial assistance for development on these undeveloped coastal barriers, including those for flood insurance, bridges and roads, utilities, new access channels, erosion control, storm protection, community development, and post-storm redevelopment and disaster relief, except to alleviate emergencies. The prohibitions are broad, covering all Federal programs that support development unless specifically exempted by the Act. Prohibition on issuance of further Federal flood insurance was effective on October 1, 1983; all other prohibitions took effect October 18, 1982, the date of the Act.

General revenue-sharing grants are exempted. Federal expenditures may be made after consultation with the Secretary of Interior for: energy resource development, maintenance of existing channel improvements and essential public roads and facilities, and national security and Coast Guard facilities. If consistent with the purposes of the Act, expenditures may be made for: fish and wildlife and recreation projects, air and water navigation aids, projects under the Land and Water Conservation Fund Act and the Coastal Zone Management Act, scientific research, public emergencies, public road, structure or facility maintenance, and nonstructural projects for shoreline stabilization.

The Secretary of Interior is directed to maintain the maps of the Coastal Barrier Resources System and to distribute copies of them to state and local governments. The Secretary may make minor and technical modifications to the boundaries of system units as consistent with the Act's purposes and as necessary to clarify the boundaries. At least every five years, the Secretary is to review the maps and make minor and technical changes necessary to reflect changes in the size or location of any system units as a result of natural forces.

To deal with longer-term issues, CBRA directed the Secretary of the Interior to conduct a study of coastal barriers and to report to Congress within three years. The report is to cover proposed changes in System boundaries, conservation management alternatives, summary of comments received, and analysis of the effects on coastal barriers of general revenue-sharing grants to the states. The Secretary has commenced study of the possible expansion of the System by an inventory of all undeveloped coastal barriers and certain other coastal areas that do not meet the definition of a coastal barrier along all coastlines of the United States. This includes the Pacific Coast and Basin, Great Lakes, Virgin Islands, Puerto Rico, and Alaska, as well as so-called "otherwise protected" areas (those managed by

public and private organizations for conservation purposes) and related coastal landforms such as keys and mainland beaches. Regional teams are being formed to assess existing natural resource and conservation management practices on the Atlantic and Gulf coasts for the report to Congress.

The content of CBRA evolved from a series of previous studies and actions. Starting in 1977, the Department of Interior began intensive studies of coastal barrier protection and cost reduction issues. These were summarized in a January 1980 Draft Environmental Statement. In August 1981, Congress included Section 341(d) in the Omnibus Budget Reconciliation Act (OBRA), prohibiting further Federal flood insurance after October 1,1983 on undeveloped coastal barriers. OBRA authorized the Secretary of Interior to designate the "undeveloped" coastal barriers based on statutory criteria.

Coastal barriers were defined as depositional geologic features consisting of unconsolidated sedimentary materials, subject to wave, tidal and wind energies, protecting landward aquatic habitats from direct waves, along with all their associated aquatic habitats. Undeveloped barriers were to be those including few man-made structures and with no significant man-made structural or human activity impediments to geomorphic and ecological processes. Protected areas were exempted from designation as undeveloped. This definition of undeveloped coastal barriers was adapted from legislation then pending in Congress, which was later to be enacted as CBRA.

Under OBRA, the Secretary of Interior defined undeveloped coastal barriers as those which on March 15, 1982 contained less than one walled and roofed building per five acres of fastland or did not have a full complement of infrastructure (vehicle access, water supply, waste water disposal, and electrical service to each lot or building site), or were not part of a large (100 or more lots), phased development in which development has been completed on one phase. The key element of this definition was the demonstrated expenditure of private capital for structures or infrastructure on the ground, as an indicator of the owner's commitment to maintain the developed status.

Relying primarily on aerial photography, the Department of Interior (DOI) applied this definition and delineated 188 undeveloped coastal barriers in an August 1982 report to Congress. (U.S. DOI, 1982) The minimum portion of a coastal barrier considered for delineation as undeveloped had to have a quarter mile of ocean-facing shoreline and to extend through the barrier from the beach to the bay or other landward aquatic habitat. (Exceptions occured where "otherwise protected" land was adjacent.)

When CBRA was enacted two months later in October, 1982,

Section 3 of its text contained the same general criteria for defining undeveloped areas as those in OBRA. However, it went on to state in Section 4 that the Coastal Barrier Resources System shall consist of those undeveloped coastal barriers depicted on maps numbered A01 through T12, dated September 30, 1982. This is a crucial difference. A Senate committee report stated that the Section 3 definition was included for information only, and that the maps of Section 4 designate the areas which meet this definition for purposes of this Act. These maps, which are similar but not identical to those submitted by the Secretary of Interior, resulted from intensive discussions between Congressmen, their staffs, interest groups, and affected private landowners; a process that some feel did not afford adequate opportunity to consider all necessary evidence. Many designated undeveloped areas proposed for development were deleted; some additional areas not previously designated undeveloped were added. The total miles of ocean-facing shoreline dropped from 721.18 to 656.18 and the total number of undeveloped units went from 188 to 186. States with decreases of at least one mile of shoreline were Texas (-10.2), Louisiana (-13.6), Mississippi (-2.4), Alabama (-2.9), Florida (-18.3), Georgia (-12.7), North Carolina (-7.1), Delaware (-2.4), and New Jersey (-3.8). (U.S. DOI, 1983, Appendix F)

Anticipated Impacts of CBRA

What impacts will this new Federal policy have on coastal barrier conservation and development? The language of CBRA is general, speaking in terms of minimizing loss of life, wasteful Federal expenditure, and damage to natural resources. The Final Environmental Statement on Undeveloped Coastal Barriers is more explicit, however. It estimates savings to the Federal Treasury of $5.4 billion over the next twenty years, plus significant savings to state and local governments, if CBRA restrictions prevent intensive capitalization of development on a long-term basis. If development were totally suppressed on half of the existing undeveloped areas (asuming the other half was committed to protective ownership), the estimated value of foregone private development over twenty years would be $9.3 billion. In addition, interference with geological and ecological processes that maintain 1637 miles of coastal barrier ecosystems would be reduced, protection of 891,000 acres of floodplains and 517,300 acres of wetlands would be increased, protection of natural landscapes enhanced, public recreation increased, fishing, shellfishing and recreation industries maintained, public safety hazards restrained, and costs to local communities which allow development of undeveloped areas increased. Without CBRA, it is anticipated that most of the remaining 748 miles of undeveloped and unprotected coastal barrier shoreline on the Atlantic and Gulf coasts would be committed about equally to development

and protection by the year 2000. (U.S. DOI, 1983, p.II-24--II-26)

Two factors determine the actual impacts of withdrawing Federal flood insurance and other expenditures on undeveloped coastal barriers: 1) the geographic extent of areas affected by the withdrawal and 2) the availability of private financing for residential development and ownership without Federal insurance and infrastructure assistance. A third important and related, but independent, factor is the ability and willingness of state and local governments to control development on undeveloped coastal barriers through both regulation of density and limiting infrastructure expenditures. The responses of private financial institutions and state and local governments are uncertain elements in the final equation. (U.S. DOI, 1983, pp.IV-2--IV-3)

Development Management Issues

CBRA can be viewed as an explicit Congressional development management strategy. Traditionally the province of local and sometimes state governments, development management is a conscious government program intended to influence the rate, amount, type, location, and/or quality of future development within a jurisdiction. (Godschalk et al., 1979) Previous Federal programs intended to influence coastal development typically delegated responsibility for decisions about application specifics to state coastal zone management agencies and local governments. Other Federal programs, such as those for highways or home mortgages, often acted as "de facto" development strategies due to their implicit encouragement of growth patterns not necessarily anticipated in the original legislation. Under CBRA, Congress itself has set the rules and drawn and adopted the maps. While this unique policy implementation approach has the advantage of clarity, uniformity, and firmness of application, it poses some problems.

Critics point out that, by enacting the maps into law, responsiveness is reduced. Typical processes for adjustment and correction used in local development management are not available. Allowing the Secretary of Interior to make minor and technical boundary modifications and requiring a five year review of the maps provides some limited capacity for adjustment, but removes the process from local access and oversight. There is no administrative procedure for changing an area from undeveloped to a developed designation. Adopting the maps as part of the Act demands an additional act of Congress to make amendments. Interpreting the exact location of boundary lines on maps produced by a Federal agency can be difficult and frustrating for local individuals.

Questions also are raised by critics about the fairness and consistency of CBRA's development management actions. Public notice through Federal Register publication is not as effective as local channels. Not all affected parties had the opportunity to take part in the lobbying for exemption from designation during enactment of CBRA that resulted in maps that departed from the uniform criteria applied by the Department of Interior in drawing the initial maps. Areas proposed for development on some local land use plans approved by state agencies are designated undeveloped on CBRA maps.

Because it is a major departure from established development management practices, CBRA presents a provocative opportunity for study. Whether it is the single experiment of its type or the bellwether of future policy, we need to understand its operation and impacts.

PILOT STUDY APPROACH

The purpose of this study is to identify the initial impacts of CBRA, to compare actual with expected impacts, to examine the responses of the major groups involved in coastal barrier development and management, and to assess the implications of study findings for the coastal zone management programs of Atlantic and Gulf states. Given the early timing, limited area, and small scale of the study, it should be viewed as exploratory and preliminary, rather than definitive and final. It provides a baseline from which a more comprehensive followup study can be mounted after CBRA impacts have become more visible.

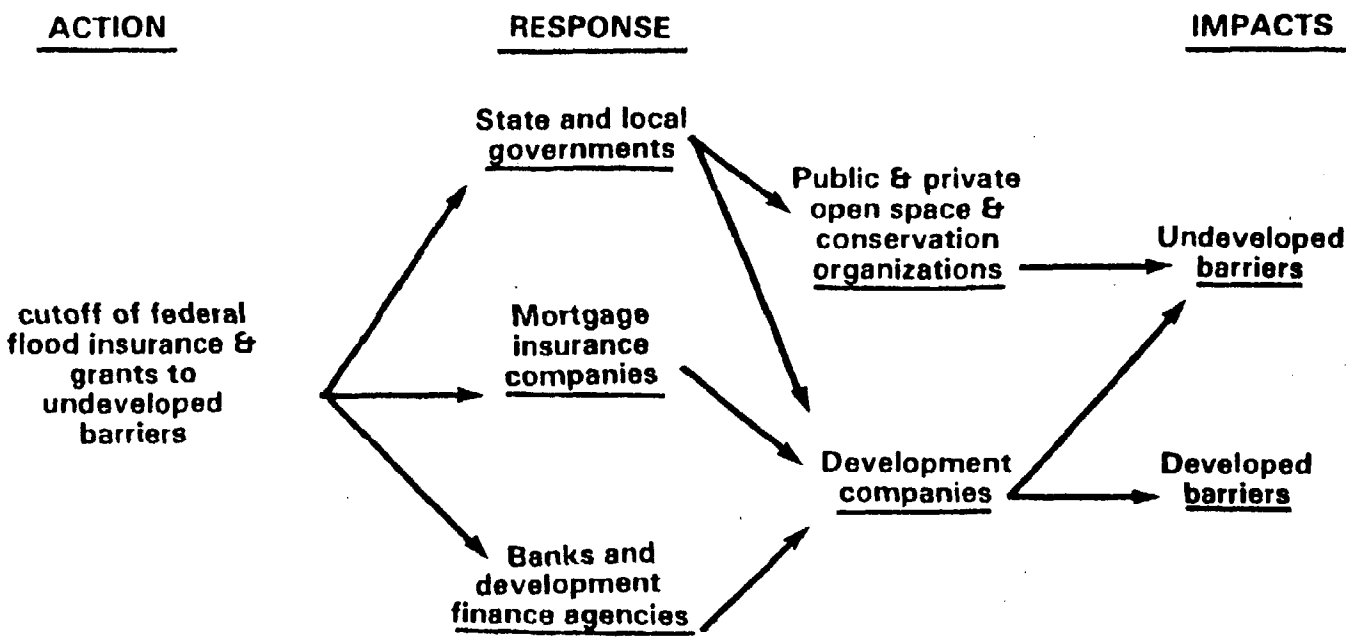
Coastal Barriers Institutional System

As recognized in the Final Environmental Statement on Undeveloped Coastal Barriers, the actual impacts on conservation and development stemming from CBRA will depend upon the responses of a variety of public and private groups. These groups, their actions, and the resulting impacts can be visualized as an institutional system.

The Coastal Barriers Institutional System is made up of three components: 1) major types of actors, 2) their actions in response to CBRA, and 3) the impacts of their actions on development and conservation of the coastal barriers. As diagrammed in Figure 1, this institutional system is set in motion by the initial action of Congress in its cutoff of Federal flood insurance and financial assistance and grants to the undeveloped coastal barriers.

Responding to the withdrawal of development incentives are five major types of actors, each faced with choices critical

Figure 1: Coastal Barriers Institutional System



to local conservation and development outcomes within their operating territories:

1. State and local governments must decide whether or not to reinforce CBRA objectives in their policies and programs of coastal barrier conservation and development management. Especially significant will be decisions concerning public spending. Will state or local public funds be made available to replace withdrawn Federal funds for constructing infrastructure to serve undeveloped coastal barriers or will Federal restrictions be paralleled by state and local governments? Will additional public funds be committed to acquire open space, recreation and conservation lands on the undeveloped portions of coastal barriers? Also significant will be the land use planning and regulation decisions of state and local governments. Will they complement CBRA objectives by targeting undeveloped coastal barriers for very low density uses, even if this means amending previous plans and regulations? Will they be able to withstand intense local pressures from developers where very large economic, and often political, stakes are at issue in decisions on major coastal development projects? Finally, will they accept and assume responsibility for operation and maintenance of infrastructure built by private developers in areas designated undeveloped?

2. Private insurance companies face the choice of whether or not to make privately underwritten flood insurance available to replace withdrawn Federal flood coverage. Will standard insurance companies currently providing fire and wind damage coverage on coastal barriers be willing to add flood damage coverage? If so, will they impose very high premiums and/or large deductibles, or limit coverage to large condominium or apartment projects or especially attractive market segments or situations? If not, will "non-admitted" insurance companies such as Lloyds of London undertake to replace Federal flood coverage on a broad enough basis and at reasonable enough rates to make widespread development feasible? If private flood insurance does become generally available, will it be stable coverage or will it tend to be withdrawn following major coastal storms or hurricanes?

3. Banks and development finance agencies must decide how flood insurance will figure in future construction and mortgage loans for development ventures on undeveloped coastal barriers. In recent years, private lenders have required that applicants purchase Federal flood insurance as a precondition for offering a loan or mortgage. Since CBRA withdraws both Federal flood insurance and Federal loans and mortgages through the Federal Housing Administration, Veteran's Administration, Small Business Administration, and Federal Home Loan Administration, the role of private capital providers becomes crucial. Additionally, since

other forms of Federal development assistance for infrastructure are also withdrawn, the private costs of project development could go up by as much as 15-20%. (U.S. DOI, 1983, pp. IV-58--IV-59) Since CBRA transfers both the costs and financial risks of development back to the private sector, banks and savings and loan associations must assess the market and decide what conditions they will attach to future loans and mortgages, without the safety net of Federal flood insurance and disaster relief assistance.

4. Public and private open space and conservation organizations must decide whether to alter their strategies to focus on acquiring land on the undeveloped coastal barriers. Since CBRA has called public attention to the need to conserve coastal barrier resources, this could be a favorable time for conservation organizations to secure ownership or development rights. Landowners discouraged by CBRA restrictions may be willing to seek tax benefits through below market sales to non-profit conservation organizations. These organizations must ask themselves if the CBRA restrictions, in concert with state and local government actions, are sufficient to conserve the undeveloped coastal barriers or if major conservation investments are also needed? On the other hand, they might ask if they should focus their land acquisition efforts on developed barrier areas, under the assumption that these are more threatened by development pressure, while undeveloped areas are generally less threatened?

5. Private development companies must decide how to respond to CBRA restrictions and related actions by others in the coastal barrier system. Developers without major land holdings on undeveloped coastal barriers are likely to be very cautious about investing there, preferring to concentrate their future projects in areas without the Federal restrictions. Developers with major land holdings in the designated areas can either seek to sell their land or develop it without use of Federal flood insurance and infrastructure assistance. If they put their land on the market, they may face losses due to the effect of the reduced development incentives on the price that buyers are willing to pay. If they opt to develop, they may find it necessary to change their plans in order to obtain private flood insurance or to gain necessary infrastructure, such as bridges and utilities. Prior to enactment of CBRA, it was argued that Federal restrictions would cause future building on the undeveloped coastal barriers to be either very cheap (hence risking only a small loss) or very expensive (hence havens for the rich). Given the cost of oceanfront land, developers with freedom to modify their plans are likely to focus on luxury condominimum projects, where they can make a profit on their investments even with higher development costs and where homeowners associations can deal with negotiating insurance contracts and maintaining infrastructure.

Resulting from the related responses of these major groups will be the environmental and economic impacts set off by CBRA's initial actions. These impacts will occur mainly in two locales:

1. Undeveloped coastal barriers designated under CBRA comprise about 24% of the 2685 mile long Atlantic and Gulf coastal barrier shoreline. Effects of reduced or delayed development pressure on natural processes are expected to be greatest in North Carolina, South Carolina, Florida, and Texas where large amounts of undeveloped fast land are available and intense development pressures exist. (U.S. DOI, 1983, p.IV-12) It would be surprising if CBRA did not result in major changes in the type, quality and amount of development here, even though development is not prohibited. Impacts should be greatest on those coastal barriers where large projects already are planned within areas designated undeveloped, and/or where no bridges exist or bridge capacity is a significant constraint.

2. Developed barriers, comprising about 40%, or 1050 miles, of the shoreline, may face significantly higher development pressures as a result of CBRA. (U.S. DOI, 1983, p.IV-3) Constraining the coastal barrier land market by removing development incentives from undeveloped areas should generate more intense demand in developed areas. The result may be demands for increased densities, absorption of available infill land, higher capacity infrastruture, and even demolition and redevelopment of older single-family residences to make way for multi-family projects. While these spillovers can bolster the economies of developed coastal areas, they can also bring strains to the institutional capacity of small communities to manage and service development and to protect public health and safety.

Research Methods

To broaden the opportunities for learning about initial CBRA impacts and responses by affected actors, three main forms of information gathering methods were used: 1) case studies of two coastal barriers where early impacts were visible, 2) a mail survey of coastal government officials, developers and conservationists in three states where large impacts were anticipated, and 3) mail, telephone and personal inquiries among insurance, financial, and related government agencies.

Case studies were conducted on Topsail Island, North Carolina, and Hutchinson Island, Florida, during late October and November 1983. Topsail Island was selected as an example of a barrier island under development pressure where the withdrawal of Federal flood insurance was a major issue. Hutchinson Island was selected as an example of a

barrier island under development pressure where the lack of availability of Federal financial assistance for bridge construction reinforced already initiated state and local development management efforts to reduce density.

A mail survey was sent to 98 informants in North Carolina, South Carolina, and Florida in December 1983. The survey was directed to coastal government officials, coastal developers, and representatives of conservation organizations with coastal concerns. Rather than a scientific statistical sampling, the survey was designed to gather information and impressions concerning CBRA impacts from a broad segment of affected actors. A substantial number of responses was received; the total was boosted by the duplication and passing on of the questionnaire to its coastal chapters by the office of one state conservation organization. Telephone followups were used to increase the response. As of January 31, 1984, sixty-eight completed surveys had been returned, along with nine letters or notes stating that the respondents had not observed impacts. A copy of the questionnaire is included in Appendix A.

CBRA SURVEY RESPONSES

	NC	SC	FL	TOTAL
Government	8	5	20	33
Developers	5	5	5	15
Conservationists	5	2	13	20
Total	18	12	38	68

Mail, telephone, and personal inquiries were directed to insurance, finance, and related government agencies. Information was obtained from one national and two state insurance associations, two state insurance commissioners offices, five insurance brokers, and a state Sea Grant research project. Interviews were conducted with two savings and loan association officials.

Study Areas

Three coastal states where major impacts from CBRA are expected by Federal planners were selected for study: North Carolina, South Carolina, and Florida. The amount of coastal barriers ocean-facing shoreline designated undeveloped is 15% in North Carolina, 26% in South Carolina, and 16% in Florida.

STUDY AREAS COASTAL BARRIERS DATA

	Ocean shore*	CBRA Categories* Devel.	Prot.	Undev.
NC	324.0	126.4	148.5	49.1
SC	153.0	62.5	50.5	40.0
FL	730.5	479.0	136.0	115.5

* In miles of ocean-facing shoreline
Source: U.S. DOI, 1983, combination of Table 8 and Appendix F.

In North Carolina, eight units of undeveloped area have been designated. (See Figure 2.) Located mostly in the southern part of the state, these are:

L01--Currituck Banks
L03--Hatteras
L03A--Shackleford Banks
L05--Onslow Beach
L06--Topsail
L07--Lea Island
L08--Wrightsville Beach
L09--Masonboro Island

Combining the miles of protected and designated undeveloped ocean-facing shoreline, some 61% of the North Carolina coastal barriers shoreline has significant constraints to further development.

South Carolina has thirteen undeveloped units. (See Figure 3.) They include:

M01--Waites Island
M02--Litchfield Beach
M03--Pawleys Inlet
M04--Debidue Beach
M05--Dewees Island
M06--Morris Island
M07--Bird Key
M08--Capt. Sams Inlet
M09--Edisto
M10--Otter Island
M11--Harbor Island
M12--St.Phillips Island
M13--Daufuskie Island

About 59% of the South Carolina coastal barriers ocean-facing shoreline has development constraints from protected and undeveloped designation.

Florida contains twelve undeveloped units covering 29.9 miles of its Atlantic coast and twenty-one units covering 85.6 miles of its Gulf coast. (See Figure 4.) They are:

Atlantic Coast Units

P02--Talbot Island
P04A--Usinas Beach
P06--Conch Island
P06A--Maranzas River
P07--Ormond-by-the-Sea
P08--Ponce Inlet
P09A--Coconut Point
P10--Vero Beach
P10A--Blue Hole
PP11--Hutchinson Island
P12--Hobe Sound
P14A--North Beach

Figure 2: Designated Undeveloped Coastal Barrier Units of North Carolina

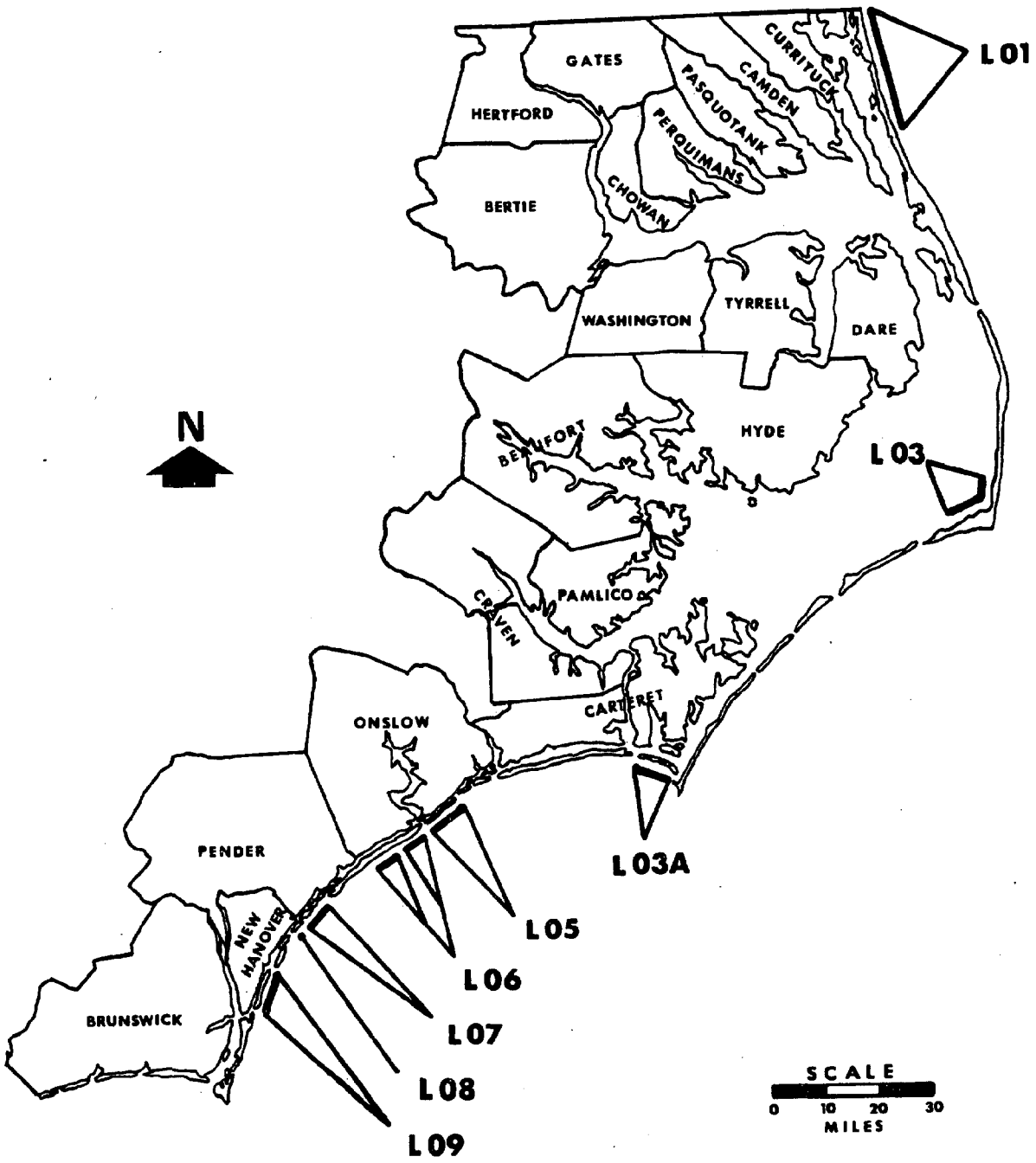


Figure 3: Designated Undeveloped Coastal Barrier Units of South Carolina

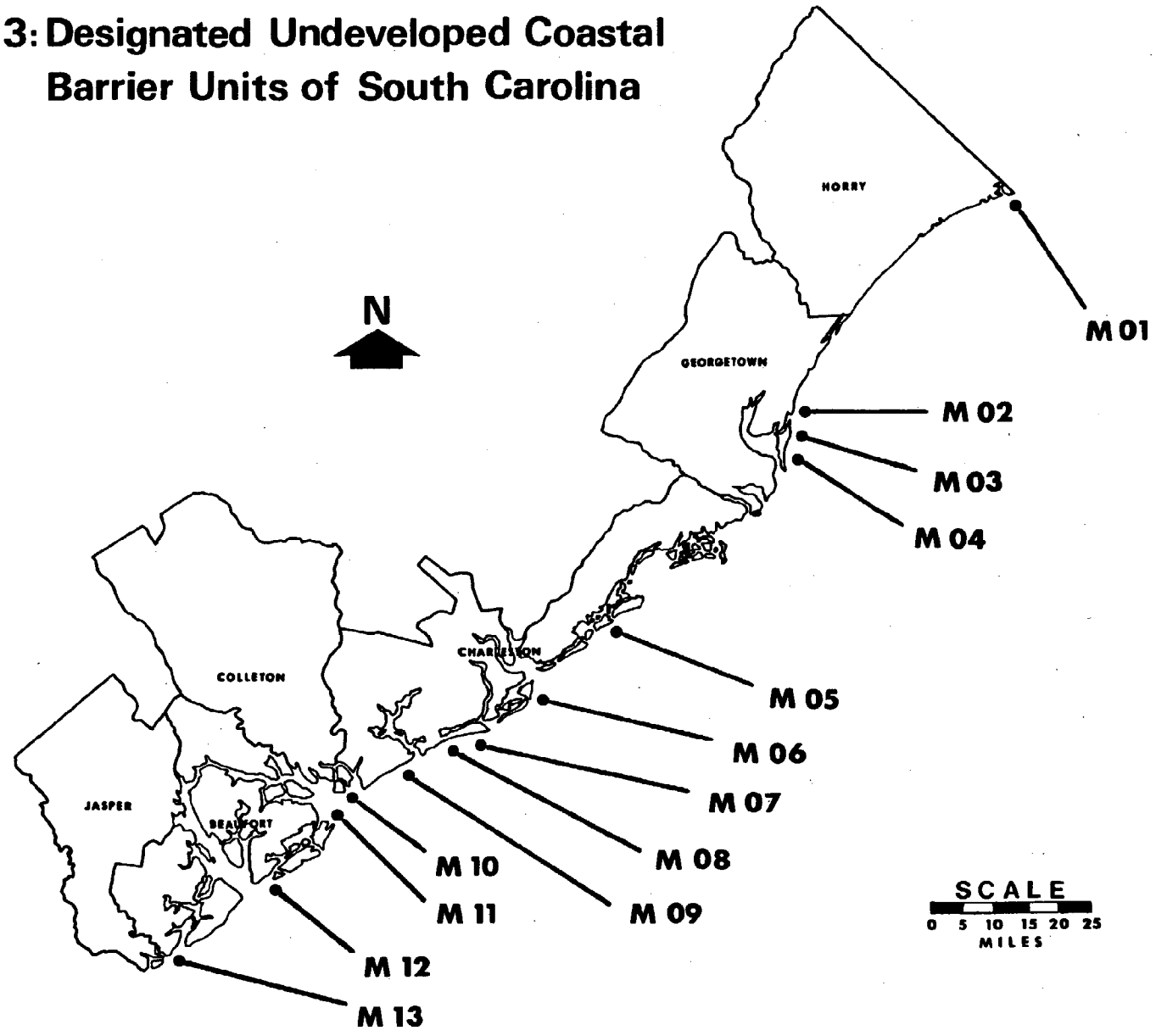
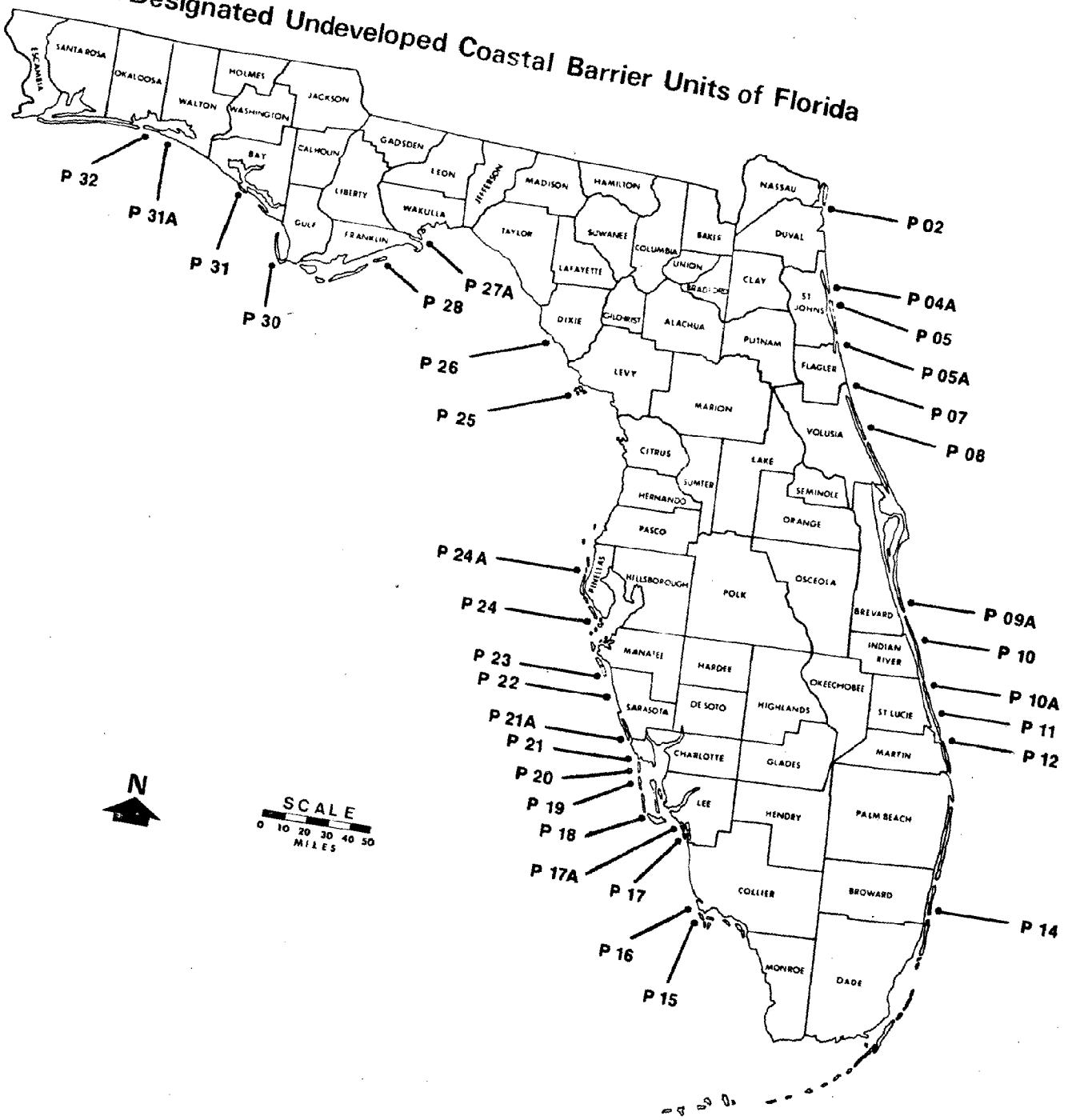


Figure 4: Designated Undeveloped Coastal Barrier Units of Florida



Gulf Coast Units

P15--Cape Romano
P16--Keewaydin Island
P17--Lovers Key
P17A--Bodwitch Point
P18--Sanibel Island
P19--N.Captiva Island
P20--Cayo Costa
P21--Bocilla Island
P21A--Manasota Key
P22--Casey Key
P23--Longboat Key
P24--The Reefs
P24A--Mandalay Point
P25--Atsena Otie Key
P26--Pepperfish Keys
P27A--Ochlockonee
P28--Dog Island
P30--Cape San Blas
P31--St.Andrew
P31A--Four Mile Village
P32--Moreno Point

Only 34% of the Florida coastal barrier ocean-facing shoreline has development constraints from protected and undeveloped status.

TOPSAIL ISLAND CASE: INSURANCE IMPACTS

Topsail Island, North Carolina, is a barrier island where the withdrawal of Federal flood insurance has had a significant initial impact on development. In North Carolina, early coastal development infrastructure investments often are private, with state or local governments later assuming responsibility for operation and maintenance.

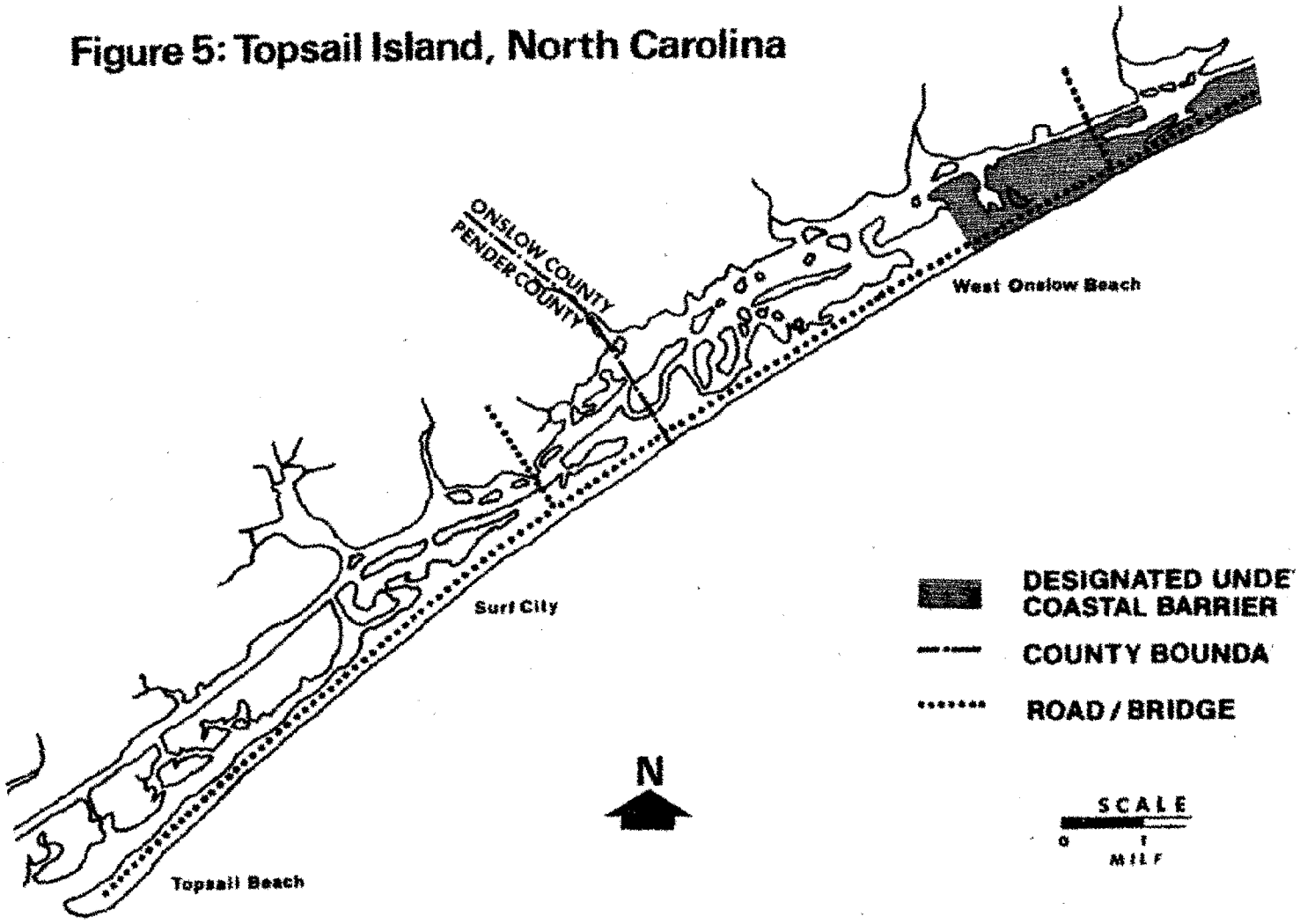
Development Status

Topsail is a multi-jurisdictional barrier island lying off the southern coast of North Carolina, adjacent to the Camp Lejeune Marine Base. The island is about 26 miles long, running northeast to southwest. Its northeastern part, known as West Onslow Beach, is an unincorporated section of Onslow County. The area designated undeveloped under CBRA is located in this section. (See Figure 5.) Its southwestern part, located within Pender County, includes two incorporated communities: Surf City and Topsail Beach. As of 1980, the island had a year-round population of about 820 and a peak seasonal (summer) population of about 19,950.

Surf City and Topsail Beach are in the Regular phase of the Federal flood insurance program. West Onslow Beach is still in the Emergency phase of the program. Maximum flood insurance coverage under the Emergency phase is $100,000 per multi-family building or $35,000 per single-family unit.

Topsail Island has access to a complete infrastructure base, with the 1983 construction of a private sewage treatment plant on the mainland with enough projected capacity (3 mgd) to serve the entire island. In addition to local systems,

Figure 5: Topsail Island, North Carolina



water is available from the Onslow County water system. Two two-lane bridges connect it to the mainland. A high bridge built in 1969 runs from West Onslow Beach across the Intracoastal Waterway. A swing bridge built in the 1950's runs from Surf City across the Intracoastal Waterway. State Road 50 and 210, a two-lane main road, runs the length of the island. Hurricane evacuation is not yet a problem. Within a 12 hour warning time, 18,000 vehicles could safely be evacuated, according to an estimate based only on bridge capacity. (A forthcoming comprehensive evacuation study is expected to project a smaller evacuation capacity.)

Previously a family beach resort area of predominantly older, single-family houses, Topsail recently has seen the construction of large scale condominium projects in the undeveloped northern section. Leading this new development have been two businessmen, Marlo Bostic and Roger Page. They hold some 1200 acres, including over one mile of ocean frontage, a large part of which is within the CBRA undeveloped area. Beginning in 1978, they extended a water line to join their development to the Onslow County water system, relocated and rebuilt a 5500 foot section of the main state road which was too close to the ocean for ocean front development, and built a one million gallon per day lagoon type, central sewage treatment plant (capable of expansion to 3 mgd) on an inland 459 acre site which is connected to their development through 8 miles of twelve inch force main. Their two major projects have been Topsail Reef, a 240 unit condominium outside the undeveloped area, and Topsail Dunes, a 156 unit condominium inside the undeveloped area. Topsail Dunes is planned for an eventual 586 units. Adjacent projects inside the undeveloped area are Bayview subdivision, with 69 lots (15 triplex and 54 duplex) and Shipwatch Villas, with 35 townhouse units.

New development has had a substantial impact on the Onslow County tax base.

ONSLOW COUNTY TAX ASSESSOR VALUATIONS:TOPSAIL ISLAND UNDEVELOPED AREA (LAND AND IMPROVEMENTS)

	1976	1984	Difference
Actual	$4,232,612	$17,355,850	+$13,123,238
Adjusted*	$7,195,440	$17,355,850	+$10,160,410

* To control for inflation between the 1976 and 1984 valuations, the 1976 figure was adjusted by multiplying it times the 1982 Consumer Price Index divided by the 1976 Consumer Price Index.

A major factor accounting for the $10 million adjusted difference between the 1976 and 1984 valuations is the addition of some $5.3 million in improvements constructed by

the Bostic and Page organization.

A 1982 study by the Corps of Engineers estimated that West Onslow Beach would suffer about $15 million in damage to real and personal property from flooding alone during a 100 year storm. (McElyea, Brower, and Godschalk, 1982, p. 6-11)

North Carolina Coastal Area Management

The state Coastal Area Management Act (CAMA) coordinates resource management through a cooperative state/local program. Local governments within the 20 coastal counties prepare mandatory local land use plans, under guidelines issued by the Coastal Resources Commission. The required five-year updates of these plans must include hurricane damage mitigation and recovery elements. (McElyea, Brower, and Godschalk, 1982)

The Commission has designated Areas of Environmental Concern (AEC's) within which development is regulated by permits. Ocean hazard AEC's include beaches, frontal dunes, inlet lands and other areas with a substantial possibility of excessive erosion or flood damage. Development here must meet an ocean front or inlet setback and be built to minimize flood and storm damage. Estuarine system AEC's include coastal wetlands, estuarine waters and shorelines, and public trust areas. Only water-dependent uses, such as docks and marinas, are allowed in these areas.

Initial Impacts

Withdrawal of Federal flood insurance under CBRA came as a shock to the developers on the northern end of Topsail Island. In early November 1983, a developer of duplexes reported that his 23 lot duplex development inside the designated undeveloped area was stopped, and that his company would lose half a million dollars if they could not get replacement private flood insurance. He felt they could eventually secure replacement insurance, but they had not yet been able to do so. Meanwhile, they had joined with Marlo Bostic and other Topsail developers in a civil suit against the United States of America, the Secretary of Interior, and the Director of the Federal Emergency Management Agency.

The suit, filed September 30, 1983 in U.S. District Court, Eastern District of North Carolina, alleged that the plaintiffs' land has been erroneously designated as an undeveloped coastal barrier island. It stated that this land has been substantially developed, since water and sewer lines have been installed and considerable structures have been completed and many more had been platted prior to

enactment of CBRA. It stated that there are other equally or less developed areas on the North Carolina coast and elsewhere that are not designated as undeveloped. It alleged that in mapping plaintiffs' land as undeveloped, defendants have disregarded the criteria in Section 3 of CBRA, thus violating substantive and procedural due process under the U.S. Constitution. Because the property is substantially developed, the designation allegedly will reduce the property value without recourse for money damages, and there is no other reasonable use to which the land may be put. The suit requested an injunction against terminating Federal assistance and designating plaintiff's land as an undeveloped coastal barrier.

On January 31,1984, Judge James C. Fox decided in favor of the defendants in the case of M. F. Bostic et al. vs. United States of America et al. (U.S. District Court, Eastern District of North Carolina, New Bern Division, No. 83-139-CIV-4) According to the decision:

"The court finds that the enactment of CBRA and the inclusion by reference in that Act of maps which are ultimately the product of independent Congressional action, has pre-empted the agency action of the Secretary, and therefore, has precluded judicial review. Further, the court concludes that Section 3 of CBRA...is an informational section and is not controlling criteria for designation of undeveloped coastal barriers; and that Congress' designation of plaintiffs' land within the CBRS is rationally justified."

The court declared that the Congressional intent in incorporating the maps by reference upon enactment of CBRA is clear from legislative records, which state that without legislative resolution the designations proposed by the Department of Interior could be subject to lawsuits for years, blocking both development and protection of coastal barriers.

No private flood insurance replacement had been obtained for any of the West Onslow Beach projects as of early 1984. Both developers and insurance brokers believe that replacement insurance eventually will be obtained for multi-family, condominium projects but are not sure about replacement insurance for single-family or duplex projects. Possible arrangements for multi-family projects include multiple perils coverage policies under which homeowners pay a larger deductible, or homeowners associations set up escrow reserve accounts funded from fees to cover flood damage to communal areas, or new private insurance companies formed to insure coastal development.

Over the long term, many developers and insurance brokers believe that CBRA will be amended or repealed. They question the fairness and logic of witholding Federal flood

insurance from coastal states where the bulk of losses have not occured. According to 1981 data from the Federal Insurance Administration, North Carolina premiums paid from the inception of the program through December 31, 1980, totalled $9,294,011, while only $5,279,199 had been paid in losses for the same period. No major hurricanes struck the state during this period, however, while the amount of development exposed to future coastal storms grew rapidly.

Topsail Island's situation differs from that of less developed barriers in North Carolina. Because it has road and bridge access and utility systems, as well as an active development market, Topsail is more like Hatteras, Wrightsville Beach, and Currituck Banks, to some extent. In these areas, withdrawal of Federal flood insurance is the primary CBRA impact, and developers may shift from single family toward multi-family or condominium projects. This could result in increasing the density of future development within the designated undeveloped area, a consequence not intended by CBRA. If this does occur, then at least in North Carolina these multi-family projects will be required to set back from the oceanfront twice as far as single-family structures, under CAMA's rules. But this trend will not encourage either continuation of low density development or conservation of undeveloped areas.

In the less actively developing North Carolina coastal barriers which lack road or bridge access or utilities, the result of CBRA may be a longer-term trend toward either low density development or maintenance of an undeveloped state, depending on market conditions and conservation actions.

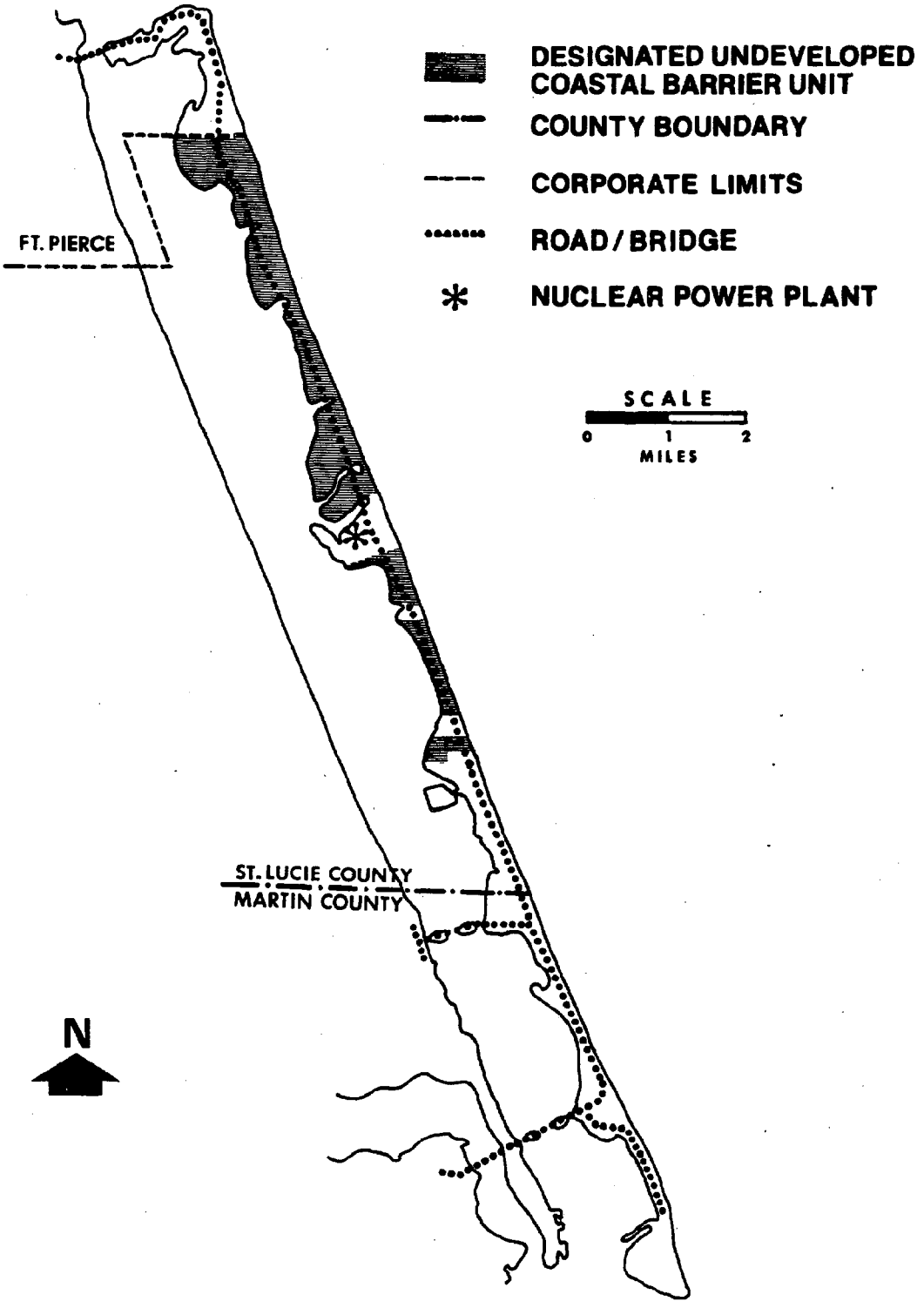
HUTCHINSON ISLAND CASE: INFRASTRUCTURE IMPACTS

Hutchinson Island, Florida, is a barrier island where the withdrawal of Federal assistance for infrastructure, in combination with state and local government actions, has had a significant initial impact on development. In this Florida case, CBRA reinforced the effects of previously initiated state and local development management.

Development Status

Hutchinson Island lies off the Atlantic coast of Florida, between West Palm Beach and Cape Kennedy. Oriented northwest to southeast, the island is about 22 miles long. Its northern part includes a section of the incorporated city of Fort Pierce, most of which is located on the mainland, and an unincorporated section of St. Lucie County. The area designated undeveloped under CBRA (Hutchinson Island unit P11) is located in this section of St. Lucie County. (See Figure 6.) Its southern part includes an unincorporated section of Martin County. As of 1982, there

Figure 6: Hutchinson Island, Florida



were 8703 dwelling units on the island, with another 7494 units approved for development. Ultimately there could be up to 36,651 dwelling units on the island if it is allowed to reach buildout under existing plans. (Treasure Coast Regional Planning Council, 1982, p.3)

All of Hutchinson Island is in the Regular phase of the Federal flood insurance program. Flood Insurance Rate Maps have been completed for the island.

A unique feature of the land use pattern on the island is the location of a Florida Power and Light Company nuclear power plant in the St. Lucie County section, about midway on the island. For planning purposes, the island is usually divided into the area north of the power plant and the area south of the power plant.

Given the high level of potential development and the unusual evacuation demands posed by a hurricane-prone barrier island with a nuclear power plant in its center, bridge capacity is the most critical infrastructure need. Transportation planners have estimated that existing and approved development already has exceeded the capacity of the bridge network serving the island. (Beiswenger, Hoch & Associates, 1983) Their study estimated that bridge and roadway improvements required to provide transportation capacity for the maximum development levels allowed under current St. Lucie County land use plans would cost as much as $95 million, and stated that, under existing coastal barrier policies, neither Federal or State of Florida funds are available to finance the needed improvements. In response, the St. Lucie Board of County Commissioners extended their temporary limitations on barrier island site development plan review through January 1984. (Resolution No. 83-87, 21 June 1983) Previously the Board had set maximum currently allocable development levels of 6926 units south of the power plant and 1865 units north of the power plant and commissioned an environmental impact and feasibility assessment of bridge and roadway improvements necessary to accommodate various levels of development. (Resolution No. 82-159, 23 November 1982) This action had been taken in response to an analysis of the public costs necessary to support barrier island development planned under the St. Lucie County Growth Management Policy Plan which estimated capital costs of $60.46 million for full development of the St. Lucie and Fort Pierce portions of Hutchinson Island. Of this total, almost $48 million was for transportation improvements. (Kimley-Horn and Associates, August 1982)

Three bridges connect the island to the mainland across the Indian River and Intracoastal Waterway. On the north end, State Road A1A joins the island and mainland portions of Fort Pierce. On the south end, inside Martin County, are the Jensen Beach Causeway and the A1A bridge crossing to

Stuart.

The land use pattern on Hutchinson Island is distinguished by several nodes of development, separated by long stretches of open space containing mangroves and Australian pines. Highway A1A connects the nodes. The northern node is within the island section of Fort Pierce, and consists of older single-family and commercial buildings mixed with new condominium projects, of which the largest is Ocean Village. The central node is the nuclear power plant. The southern node contains a number of high-rise condominium tower projects in St. Lucie County and a number of four story condominium projects in Martin County.

Florida Coastal Management

Coastal managment in Florida is accomplished through coordinating a number of existing laws and regulations. The Florida Coastal Management Act directs the Department of Environmental Regulation, as the lead agency, to develop a coastal program management framework. Most implementation of state coastal programs is carried out by three agencies: Department of Environmental Regulation, Department of Natural Resources, and Department of Community Affairs. The Interagency Management Committee coordinates the work of these and other resource management agencies.

Several management tools are important to coastal development management:

1. Areas of Critical State Concern can be designated under Chapter 380 of the Florida statutes. These areas contain significant resources which may be affected by development. When designated, the state oversees development and local regulatory actions in these areas. Potential Areas of Critical State Concern are studied by a Resource Planning and Management Committee, who recommend improvements to local government plans and regulations necessary to avoid state designation. The Hutchinson Island Resource Management Plan, adopted October 6, 1983, recommends local government reductions in land use densities in order to ensure a viable transportation system for hurricane evacuation. Local actions will be monitored by the Department of Community Affairs to determine if designation is necessary or not. The Hutchinson Island Plan is seen as a model for other coastal barrier areas, such as northwest Florida.

2. Developments of Regional Impact (DRI's) are those developments deemed to be of regional significance because they fall within specified thresholds of size or scale. Thresholds can be lowered in special cases, such as coastal barriers. Local governments issue development orders for DRI's, which are also reviewed by regional planning agencies

and by the state, which can appeal to the Governor and Cabinet to overturn the local order.

3. Coastal Construction Control Lines are set by the state based on the mean water level of the 100 year storm surge and erosion rates. Construction seaward of the lines requires a state permit and special structural and design provisions.

In addition to these tools, the Governor's Executive Order 81-105 states that state agencies are to give coastal barriers high consideration in state land acquisition programs, are not to use state funds to subsidize growth or post disaster redevelopment in hazardous coastal barriers, and are to encourage growth management consistent with evacuation capabilities and hazard mitigation standards. This Order, which has been difficult to implement, is under study for revision.

Three coastal barriers acts will be considered by the 1984 Florida legislature. The Coastal Barrier Safety Act would require local governments to strengthen building codes on coastal barriers. The Coastal Infrastructure Policy Act would provide for state designation of undeveloped barriers more extensive than those designated under CBRA, and would prohibit state infrastructure expenditures on undeveloped barriers. The Coastal Protection Elements Act would amend the Local Government Comprehensive Plannig Act to reduce growth pressure in coastal areas by limiting public expenditures in areas subject to natural disasters.

Initial Impacts

In 1982, aware that island development proposals could be exceeding its carrying capacity, St. Lucie County officials imposed a moratorium on further site plan review for new projects on Hutchinson Island. The 1982 Kimley-Horn report confirmed their fears about the serious limits to growth posed by existing infrastructure capacity. Further inquiries added the staggering news that neither state nor Federal financial assistance would be available to help build the necessary new bridges and roadways. State transportation funds would not be available under the Governor's Executive Order 81-105, which stated that state funds shall not be used to subsidize growth or post disaster redevelopment in hazardous coastal barrier areas. Federal transportation funds would not be available under CBRA restrictions.

Faced with clear evidence of severe road and bridge capacity problems, worsened by potential hurricane ad nuclear disaster evacuation scenarios, St. Lucie County denied a number of large scale development proposals being reviewed under its site plan review ordinance. The developers sued

the County, and the court held for the developers on grounds that the site plan review ordinance was too vague and allowed arbitrary decisions. The County has appealed and their appeal is pending. (St. Lucie County vs. North Palm Development et al., Fourth District Court of Appeals of Florida, Case No. 83-1863 and 83-2233)

Analyses of available traffic capacity have given specific estimates of remaining dwelling unit capacity. The 1982 Kimley-Horn study found about 800 more dwelling units could be accommodated by the existing traffic system. Some 700 of these were allocated to a pending project north of the power plant, Green Turtle Beach. Among the further projects pending but not approved in 1982 were: Sea Island Club, 154 units; Vantage Point, 108 units; Atlantic Beach Club, 304 units; Royale Terraces, 540 units; Seaspray, 186 units; Indian River Club, 76 units; Sunrise Ocean Club, 888 units and a 101,000 square foot convention center. Some of these projects have received preliminary designation as possible DRI's.

Tax assessments for the undeveloped area of Hutchinson Island dropped in 1983. By law, the assessor is required to account for the effects of moratoria or similar land use regulations. The $8.6 million drop is the result of the moratorium plus the onset of weaker market trends for island condominium units, not a direct result of CBRA.

ST. LUCIE COUNTY TAX ASSESSOR VALUATIONS: HUTCHINSON ISLAND UNDEVELOPED AREA

	1982	1983	Difference
Actual	$39,423,620	$30,789,170	-$8,634,450

Note: 1982 valuations for vacant property based on densities allowed under Comprehensive Plan; 1983 valuations based on ocean front footage.

Hutchinson Island developers are prepared to participate in financing bridge and roadway improvements necessary to remove capacity constraints. They have hired a consultant to design a capital improvements program, which would include impact fees from development projects, a device already in use in several south Florida counties. St. Lucie County is also conducting a financing study to look at various funding approaches, including a bond issue. And the State has indicated it may be willing to participate in financing a new bridge to meet existing needs, including mainland to island recreation trips, in exchange for firm growth management as outlined in the Hutchinson Island Resource Management Plan.

As of early 1984, no Hutchinson Island developers

interviewed had yet obtained private flood insurance. They believed it would be available, however, and did not feel the withdrawal of Federal flood insurance would be a significant constraint. Developers were more concerned about county development regulations and the oversupply of condominium units presently on the market. They felt the primary impact would be economic, raising the price of future units. Insurance broker opinion was less sanguine, but did identify some private flood insurance available through non-admitted carriers; long term stability of this source was felt to be problematic, however. If private insurance was not renewed, after a storm for example, then the financial institution holding the mortgage might foreclose unless the insurance was replaced.

From the inception of the Federal flood insurance program through December 31, 1980, Florida policy holders paid $171,616,029 in premiums. Only $27,187,129 has been paid in loss claims to Florida policy holders. Like North Carolina and South Carolina, Florida has contributed more to the program than it has received so far. Again a major hurricane could change that balance; Hurricane Alicia, a relatively minor 1983 storm, caused some $1.2 billion in damages in Texas.

SURVEY RESPONDENTS' OPINIONS

A December 1983 mail survey was directed to 98 coastal government officials, developers, and conservationists. Completed surveys were received from sixty-eight respondents. In addition, a number of telephone, mail, and personal inquiries were directed to representatives of the insurance and finance industries, for background information.

Most survey respondents qualified their responses by stating that it was too early to give definitive answers concerning CBRA impacts. Most government officials (of the 33 responding) had not yet observed major impacts, but tended to be positive about CBRA. Developers (15 respondents), while more negative about CBRA, felt that its constraints would not deter their plans. Conservationists (20 respondents), many of whom had not observed impacts first hand, were positive about CBRA.

The mail survey, shown in Appendix A, asked about Federal flood insurance withdrawal impacts, infrastructure assistance withdrawal impacts, and overall impacts of CBRA.

Insurance Withdrawal Impacts

Respondents were given a list of possible impacts which have occurred as a result of the withdrawal of Federal flood

insurance and asked to check all that applied. Responses are shown in rank order, with the impact receiving the most checks listed first.

INSURANCE WITHDRAWAL IMPACT OPINIONS

Rank	Impact	No. Responses Gov.	Dev.	Con.	Total No.	%
1	Development not affected	20	6	8	34	23
2	Increased pressure in developed areas	7	6	13	26	18
3	Open space land acquisition increasing	12	3	6	21	14
4	Developers obtaining private insurance	9	4	4	17	12
5	Densities increasing due to higher insurance costs	3	3	5	11	7
5	Development slowed or stopped	5	2	4	11	7
5	Single-family or duplex projects slowed/stopped	4	3	4	11	7
6	Sales prices increasing due to insurance costs	3	3	3	9	6
7	Multi-family projects slowed/stopped	3	1	4	8	5

While there is some difference of opinion on the impacts, there is general consensus that the top four impacts are occuring. Since Federal flood insurance had only been withdrawn from undeveloped coastal barriers for two months, it is reasonable to expect that development would not yet have been affected. The increase is development pressure in the developed areas of the coastal barriers, while checked by many developers and conservationists, is not checked by many government officials, who are most likely to be aware of this impact through requests for project approvals or building permits. Acquisition of land for open space or conservation may have been proceeding independently of CBRA. And the opinion that developers are actually obtaining private flood insurance is not yet borne out by the case studies.

Infrastructure Assistance Withdrawal Impacts

Three questions were posed on infrastructure. The first asked respondents to identify those impacts which have taken place as a result of withdrawal of Federal assistance for infrastructure. The alternative checked by most respondents was that development has not been affected by withdrawal of Federal financial assistance for infrastructure. Considerably fewer felt that development in general or single-family/duplex or multi-family projects have slowed or stopped in undeveloped areas.

INFRASTRUCTURE ASSISTANCE WITHDRAWAL IMPACT OPINIONS

Rank	Impact	No. Responses			Total	
		Gov.	Dev.	Con.	No.	%
1	Development not affected	19	8	10	37	58
2	Development slowed/stop	9	1	3	13	20
3	Multi-family projects slowed/stopped	1	2	5	8	13
4	Single-family/duplex projects slowed/stopped	2	1	3	6	9

A second question asked respondents to rank (from 1 to 5) which types of infrastructure are most critical in limiting future development in undeveloped areas. There was considerable variation in these opinions, with government officials ranking bridges first, developers ranking sewage treatment facilities first, and conservationists ranking water supply facilities first. These outcomes may result more from local infrastructure conditions and needs than from differences in respondent group opinions.

CRITICAL INFRASTRUCTURE OPINIONS

Rank			Type
Gov.	Dev.	Con.	
1	2	3	Bridges
3	2	1	Water supply facilities
4	1	2	Sewage treatment facilities
2	2	4	Roads

A third question asked which of a list of possible sources of infrastructure financing will be used, if Federal assistance for infrastructure in undeveloped areas is to be replaced. The overwhelming first choice by all groups was private financing by developers. Local government bond issues and tax revenues were the next most popular sources. State sources were checked by many fewer respondents.

REPLACEMENT INFRASTRUCTURE ASSISTANCE SOURCES

Rank	Source	No. Responses			Total	
		Gov.	Dev.	Con.	No.	%
1	Developer financing	21	9	15	45	35
2	Local gov. bonds	10	3	10	23	18
3	Local tax revenues	7	5	9	21	16
4	No replacement foreseen	10	2	3	15	11
5	State tax revenues	4	5	4	13	10
6	State bonds	2	3	3	8	6
7	Other (tolls, fees, etc)	4	-	1	5	4

Overall Impacts

A series of questions on overall impacts asked about their magnitude, direction, and consistency with state and local coastal plans. Respondents were asked if they foresee the need for changes in state coastal management programs or policies as a result of CBRA. Finally, they were asked to identify the most important future impacts of CBRA.

Most government officials felt impacts have been minor, positive or neutral, and consistent or neutral. Developers were split on the magnitude of impact, but most felt impacts had been neutral or negative, and inconsistent. Conservationts mostly saw impacts as minor, positive, and consistent. Most government officials felt changes in state coastal programs were not needed; developers and conservationists tended to see them as needed.

OVERALL IMPACTS

	Magnitude			Direct.			Consist.			Change	
	Maj.	N.	Min.	+	N.	-	Co.	N.	Inc.	Yes	No
Gov.	2	7	23	13	12	4	15	12	4	11	19
Dev.	4	3	5	1	7	6	2	1	10	8	5
Con.	4	4	11	12	5	1	9	3	5	9	6

Note: Maj.= major; N.= neutral; Min.= minor; + = positive; - = negative; Co.= consistent; Inc.= inconsistent.

An open-ended question asked about types of changes needed in state coastal management programs or policies as a result of CBRA. Not all respondents answered this question. Types of changes suggested for state coastal programs are summarized below by respondent group.

COASTAL PROGRAM CHANGES

Florida government officials:

-state legislation to support the Governor's Executive Order and augment the Federal coastal barrier program
-increased funding to purchase barrier island open space land
-consistent guidelines on funding priorities for coastal barriers improvements
-reducing development seaward of the Coastal Construction Control Lines
-state legislation providing for Transfer of Development Rights from undeveloped barriers.

North Carolina government officials:

-state definitions of natural thresholds as a basis for density limits

-emphasis in regulations on limits on multi-family development
-safeguards for state and local governments from responsibility for unsubsidized coastal development.

Florida developers:

-state reassessment of policies and provision of consistent rulings on allowable development
-state funding for bridges.

North Carolina developers:

-local enforcement of development rules
-application of coastal barrier constraints in other resource areas, such as forest management
-options to use land in undeveloped areas for other purposes, such as golf courses.

South Carolina developers:

-provide consistency between state and Federal actions
-application of same rules to state holdings as to private holdings in undeveloped areas.

Florida conservationists:

-prompt increase in acquisition of conservation lands while market is favorable
-hold the line on Coastal Construction Control Line setbacks
-prohibit state expenditures on undeveloped barriers
-limit development to impermanent uses
-add provisions to beach nourishment provisions limiting numbers of dwelling units in areas served and requiring relocation where feasible
-include protection of species diversity as a goal.

North Carolina conservationists:

-hold firm to rules and enforce them.

A final open-ended question asked about expectations for the most important future impacts of CBRA. There was considerable variation in the answers, but most of them tended to repeat previous themes. Responses are summarized below by major group.

MOST IMPORTANT FUTURE CBRA IMPACTS

Government officials:

-slowed rate of development
-increased development pressure on developed beaches

-impetus for public land acquisition
-shifts in infrastructure funding to developers and local governments
-increased development costs and heightened exclusivity of barrier islands
-reduction in loss of life and property from coastal storms
-limit on buildback after storms
-shift from single-family to corporate ownership
-increased density of development
-precursor of state/local action to conserve beach and dune systems.

Developers:

-more luxury development
-accelerated development of mainland waterfronts and developed barriers
-more state restrictions on coastal development
-lowered quality of planning, rushed development, and increased density
-slowed single-family development
-shift of infrastructure costs to the private sector
-private development solutions postponed until a more realistic (public policy) approach is taken.

Conservationists:

-pressure from developers to remove restrictions
-more high rise development
-slackening of development rate but increased innovation in design
-reduced public costs for disaster relief, erosion control, and improvements
-increased open space preservation and resource conservation.

CONCLUSIONS

Based on this preliminary study, it is clear that CBRA has the potential to be an active development management influence in a number of coastal locations. However, the extent of its future influence will depend largely on the reponses of other actors in the coastal barriers institutional system, as well as upon any future Federal actions taken for resource management and conservation purposes.

Initial Impacts

By the end of 1983, CBRA had slowed the development rate on certain undeveloped coastal barriers where withdrawal of Federal flood insurance or infrastructure assistance, coupled with local conditions, imposed serious development constraints. Removing the Federal development incentives

that had been depended upon for a decade or more caused a period of confusion and uncertainty about replacing those financial props. Developers whose project timing coincided with CBRA withdrawals were faced with new and difficult adjustments.

Some developers chose to attack the constraints imposed by CBRA in the courts. While further appeals could be brought, those in North Carolina who challenged CBRA directly found the Congressionally drawn and adopted maps impossible to overturn. A U.S. District Court denied their suit to be exempted from designation as undeveloped under CBRA.

The status of the private flood insurance market remains uncertain. A forthcoming Sea Grant study in South Carolina supposedly has found private insurance is available there. (Griepentrog, forthcoming) North Carolina agents have been notified that two private carriers will make insurance available in 1984. However, extensive inquiries during this study uncovered few sources of replacement insurance, and these tended to be non-admitted carriers. Reinsurance reportedly was a problem. The expectation was that multi-family or condominium projects would be easier to obtain private flood insurance for than single family units.

One possible result is that developers commited to projects in the undeveloped areas may orient to the high end of the market, if they have not already done so. This implies condominiums and multi-family projects. This market segment also is more able to afford the higher sales prices likely to result from the private sector assumption of infrastructure costs previously subsidized by the Federal taxpayer.

Some states and localities are taking advantage of heightened awareness of conservation needs to increase their acquisition of coastal barrier land for conservation purposes. This is not yet a widespread reaction, however. There is also some state attention to related aspects of coastal barriers. Massachusetts has a coastal barrier executive order (predating CBRA), as does Florida, where three coastal barrier bills will be considered by the 1984 legislature.

The important question is whether these initial impacts will prove to be short-term or long-term. Coastal barrier development has been proceeding at an increasing rate for a number of years. CBRA could be the catalyst to redirect this trend, particularly if it is reinforced by the actions of other coastal development and conservation groups. Systematic monitoring of outcomes will be necessary to keep decision-makers abreast of results and to inform them of problems and opportunities for effective management.

Actual Versus Expected Impacts

Congress sought to minimize loss of life, wasteful expenditure of Federal revenues, and damage to natural resources through CBRA's withdrawal of Federal developemnt incentives. They requested a study within 3 years comparing broader management alternatives for conservation of natural resources, including possible combinations of Federal, state, local, and private actions.

Most informants contacted during this study believed that CBRA will accomplish the broad goals sought, although to varying degrees. Supporters commend both its actions in withdrawing subsidies and its public message supporting coastal barrier conservation. Skeptics point out that commited developers, backed up by a strong market, will not only proceed with development but also will eliminate any plans for single-family, low density projects. In those cases, there will be few reductions in damage to natural resources or exposure to coastal hazards.

Another possibility is that the market for oceanfront housing, restricted from undeveloped areas, will simply intensify in developed areas. In this case, exposure to coastal hazards and Federal expenditures in developed areas could increase but damage to natural resources may not be as extensive. Skeptics point out that lobbyists managed to get many of the areas planned for current development deleted from the CBRA maps prior to enactment. This means that many new projects could soon appear within developed areas.

Coastal Management Implications

Enactment of CBRA brought a new development management program to bear on coastal areas. While CBRA's actions stand independently, the new law recognizes the importance of state, local, and private actions and initiatives in long term conservation of natural resources. Every state coastal management program enjoys the opportunity to design innovative management strategies to accomplish the CBRA goals.

Implementation of CBRA also points up the continuing need to improve coordination of existing Federal programs in order to bolster CBRA actions. Intergovernmental efforts to conserve open space and reduce exposure to hazards on coastal barriers can be greatly assisted by creative use of the Land and Water Conservation Fund, the Marine Sanctuaries Program, FEMA's Section 1362 relocation funds, and others.

A recent conference in Florida pointed out the inadequacy of state/regional/local policies for acquisition and preservation of coastal barriers and regulation of development densities, as well as the need to identify the

fiscal responsibility of parties involved in coastal barrier development and post-disaster redevelopment. (Select Committee on Growth Management, Florida House of Representatives, October 1983) Conference participants called for legislative solutions to these problems. The same issues should be relevant to the coastal management programs of other states.

A promising tool for coastal barrier planning is the concept of carrying capacity--that level of development which can be accommodated on the land within acceptable standards of efficiency and economy, and without serious hazards to life and property or serious environmental degradation. Carrying capacity thresholds of public facilities and fragile environmental areas can be analyzed, and the results can give decision-makers valuable insights into the impacts of proposed development. Coastal management programs could initiate studies of coastal barrier carrying capacities, including land, water supply, waste disposal, transportation and evacuation, and recreation. They could identify areas susceptible to storm surge and erosion and delineate conditions under which evacuation capacity would be exceeded by demand. Local plans and development regulations could be required to respect carrying capacity, as is done in the Lake Tahoe Region, for example.

Many other innovative management approaches could be considered. State enabling legislation setting up programs to allow the transfer of development rights from coastal barriers to mainland locations could relieve financial pressures to develop at high densities on the barriers. While transfer of development rights efforts have not been highly successful to date, they might be effective in combination with CBRA's withdrawals of flood insurance and infrastructure funding on undeveloped barriers. Or states might consider establishing special coastal barrier management districts, such as the Pinelands in New Jersey, where plans and regulations tailored to the barrier environment could be implemented.

In short, CBRA contains many important implications for state coastal management programs. Every coastal state would be wise to review its programs and policies in light of CBRA, in order to discover opportunities to strengthen achievement of its particular objectives.

REFERENCES

Beiswenger, Hoch & Associates, Inc., in association with Kimley-Horn & Associates, Inc. (1983) Hutchinson Island Environmental Study.

Godschalk, D.R., D.Brower, et al. (1979) Constitutional Issues of Growth Management. Chicago: Planners Press.

Governor of Florida (1981) Executive Order Number 81-105.

Griepentrog, G. (Forthcoming) The Availability of Private Flood Insurance. Charleston: South Sea Grant Consortium.

Hutchinson Island Resource Planning and Management Committee (1983) Hutchinson Island Resource Management Plan.

Kimley-Horn & Associates, Inc. (1982) St.Lucie County Barrier Island Study: Analysis of Growth Management Policy Plan.

McElyea, W.D., D.Brower, and D.R.Godschalk (1982) Before the Storm: Managing Development to Reduce Hurricane Damage. Chapel Hill: Center for Urban and Regional Studies.

Select Committee on Growth Management, Florida House of Representatives (1983) Change, Challenge, and Response: Meeting Florida's Future.

Treasure Coast Regional Planning Council (1982) Hutchinson Island: The Development of a Barrier Island.

U.S.Department of Interior (1982) Undeveloped Coastal Barriers: Report to Congress.

U.S.Department of Interior (1983) Final Environmental Statement: Undeveloped Coastal Barriers.

APPENDIX A

COASTAL BARRIER RESOURCES ACT IMPACT SURVEY

RESPONDENT: Date:----------

Name----------

Title----------

Address----------

FEDERAL FLOOD INSURANCE WITHDRAWAL IMPACTS

1. Which of the following impacts have occurred as a result of the withdrawal of Federal flood insurance? (check all that apply)

----Development in general has slowed or stopped in the designated "undeveloped" areas.

----Single family and/or duplex projects have slowed or stopped in the "undeveloped" areas.

----Multiple family projects have slowed or stopped in the "undeveloped" areas.

----Project developers in "undeveloped" areas are obtaining private flood insurance coverage.

----Densities for proposed development projects in "undeveloped" areas are increasing, due to higher insurance costs.

----Sale prices for residential units in proposed development projects in "undeveloped" areas are increasing, due to higher insurance costs.

----Acquisition of land for open space or conservation in "undeveloped" areas is increasing.

----Development pressures in developed areas of the coastal barriers are increasing.

----Development has not been affected by withdrawal of Federal flood insurance.

IMPACTS OF WITHDRAWAL OF FINANCIAL ASSISTANCE TO INFRASTRUCTURE

2. Which of the following impacts have taken place as a result of the withdrawal of Federal assistance to infrastructure? (check all that apply)

____Development in general has slowed or stopped in "undeveloped" areas.

____Single family and/or duplex projects have slowed or stopped in "undeveloped" areas.

____Multiple family projects have slowed or stopped in "undeveloped" areas.

____Development has not been affected by withdrawal of Federal infrastructure financing assistance.

3. Which of the following types of infrastructure are most critical in terms of limiting future development in "undeveloped" areas? (rank from 1 as most critical to 5 as least critical)

____Bridges

____Roads

____Sewage treatment facilities

____Water supply facilities

____Other (specify) ----------

4. If Federal assistance for infrastructure in "undeveloped" areas is to be replaced, which of the following sources will be used? (check all that apply)

____State government tax revenues

____Local government tax revenues

____State government bond issues

____Local government bond issues

____Private financing by developers

____Other (specify)----------

____No replacement foreseen

OVERALL IMPACTS

5. In overall terms, would you say that the impacts of the Coastal Barrier Resources Act have been: (check one)

----major ----neutral ----minor

6. In overall terms, have the impacts of the Coastal Barrier Resources Act been: (check one)

----positive ----neutral ----negative

7. In relation to state and local coastal plans, have the Coastal Barrier Resource Act's actions been: (check one)

----consistent ----neutral ----inconsistent

8. Do you foresee the need for any changes in state coastal management programs or policies as a result of the Coastal Barrier Resources Act?

----yes ----no If yes, what type of changes are needed?

---

9. What do you expect to be the most important future impacts on barrier island conservation and development of the Coastal Barrier Resources Act?

---

10. If you have any further comments, please note them below.

THANK YOU !! Please return this questionnaire to:
Professor David Godschalk
Department of City & Regional Planning
New East Building
University of North Carolina
Chapel Hill, NC 27514